

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
7 March 2002 (07.03.2002)

PCT

(10) International Publication Number
WO 02/17977 A3

(51) International Patent Classification⁷: A61L 9/02, 9/04

(21) International Application Number: PCT/US01/26762

(22) International Filing Date: 28 August 2001 (28.08.2001)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
09/652,561 31 August 2000 (31.08.2000) US

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(81) Designated States (*national*): AE, AG, AL, AM, AT, AU,
AZ, BA, BB, BG, BY, BZ, CA, CH, CO, CR, CU, CZ, DE,
DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR,
HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR, LS,
LT, LU, LV, MA, MD, MG, MK, MN, MW, MZ, NO, NZ,
PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT,
TZ, UA, UG, UZ, VN, YU, ZA, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM,
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian
patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European
patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE,
IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF,
CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD,
TG).

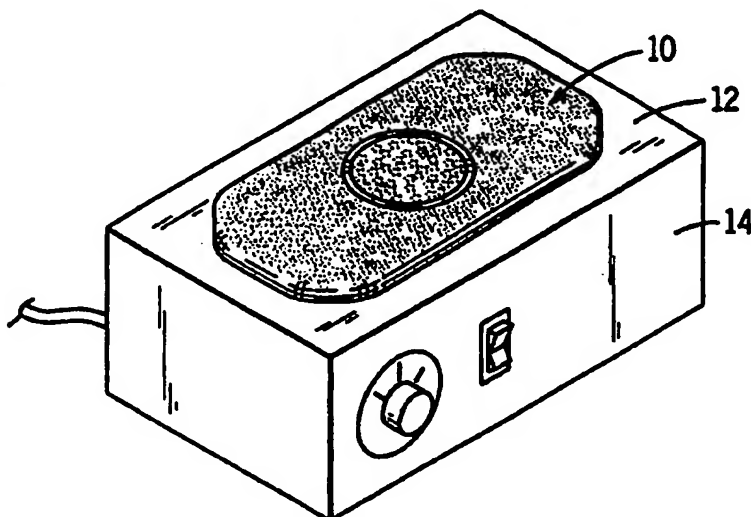
Published:

- with international search report
- before the expiration of the time limit for amending the
claims and to be republished in the event of receipt of
amendments

(88) Date of publication of the international search report:
18 April 2002

For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: TWO-STAGE DISPENSING MAT



(57) Abstract: Disclosed herein is two-stage mat for dispensing volatile materials. The mat is comprised of two materials varying either in thickness, thermal conductivity and/or porosity (and coated with like volatile material), or coated with volatile materials having different vaporization pressures. In either configuration, the mat provides for both an instant burst of volatile and then a sustained vaporization of volatile. Methods of using such mats are also disclosed.

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 01/26762

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A61L9/02 A61L9/04

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A01N A61L A01M

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|---|-----------------------|
| X | US 6 074 656 A (NAKAYAMA KOJI ET AL) 13 June 2000 (2000-06-13) column 1, line 66 -column 2, line 16 column 3, line 1-50 column 4, line 1-6,16-22,40-47 column 5, line 10-17 | 1-6,11 |
| X | US 4 439 415 A (HENNART CLAUDE ET AL) 27 March 1984 (1984-03-27) cited in the application column 1, line 5-7,40-48 column 6, line 18-23,46-64 column 7, line 61-66 column 8, line 5-11 claim 1; examples 1,2 | 1-3,5,6, 21 |

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Date of the actual completion of the international search

20 February 2002

Date of mailing of the international search report

28/02/2002

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International Application No

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|---|-----------------------------|
| X | GB 2 122 903 A (TAKAMORI MASAYUKI; TAKAMORI YASUYUKI) 25 January 1984 (1984-01-25) page 1, line 4-10, 32-41, 49-64, 67-98 page 2, line 75-77, 106-130 page 3, line 14-31 ---- | 1 |
| A | DE 196 11 993 C (BTC BIOTECH INT) 17 April 1997 (1997-04-17) page 2, line 3-16, 34-50 page 3, line 63 -page 4, line 2, 20-32, 51, 65-68 ---- | 1, 2, 6-10, 13, 16-18 |
| A | GB 2 130 883 A (SUMITOMO CHEMICAL CO) 13 June 1984 (1984-06-13) page 1, line 4-12 claims 3, 4 ---- | 1, 2, 5, 11 |
| A | US 6 078 728 A (GATZEMEYER JOHN J ET AL) 20 June 2000 (2000-06-20) cited in the application column 2, line 32, 56-63 ---- | 1 |
| A | US 6 031 967 A (MUNAGAVALASA MURTHY S ET AL) 29 February 2000 (2000-02-29) cited in the application column 1, line 55 -column 2, line 2 column 2, line 10-14, 58-63 ---- | 1 |
| A | GB 2 166 653 A (BRATITCH EDWARD) 14 May 1986 (1986-05-14) column 1, line 3-9, 25-39, 51-57, 61-72, 89-106 ----- | 1 |

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 01/26762

| Patent document cited in search report | | Publication date | Patent family member(s) | Publication date |
|---|---|---------------------|----------------------------|---------------------|
| US 6074656 | A | 13-06-2000 | AU 731536 B2 | 29-03-2001 |
| | | | AU 4513697 A | 14-05-1998 |
| | | | CN 1184586 A | 17-06-1998 |
| | | | JP 11127755 A | 18-05-1999 |
| | | | JP 10194904 A | 28-07-1998 |
| | | | SG 66407 A1 | 20-07-1999 |
| | | | TW 393297 B | 11-06-2000 |
| US 4439415 | A | 27-03-1984 | LU 82279 A1 | 30-10-1981 |
| | | | LU 82867 A1 | 10-05-1982 |
| | | | AR 230361 A1 | 30-04-1984 |
| | | | AT 7566 T | 15-06-1984 |
| | | | AU 546123 B2 | 15-08-1985 |
| | | | AU 6858381 A | 24-09-1981 |
| | | | BR 8101690 A | 22-09-1981 |
| | | | DE 3163721 D1 | 28-06-1984 |
| | | | EP 0037375 A1 | 07-10-1981 |
| | | | ES 500543 D0 | 01-11-1982 |
| | | | ES 8300243 A1 | 16-01-1983 |
| | | | GB 2070933 A ,B | 16-09-1981 |
| | | | IL 62434 A | 30-04-1984 |
| | | | IN 152745 A1 | 24-03-1984 |
| | | | JP 1504886 C | 13-07-1989 |
| | | | JP 56145201 A | 11-11-1981 |
| | | | JP 63052602 B | 19-10-1988 |
| | | | PH 18836 A | 09-10-1985 |
| | | | PT 72697 A ,B | 01-04-1981 |
| | | | ZA 8101870 A | 31-03-1982 |
| GB 2122903 | A | 25-01-1984 | JP 58225001 A | 27-12-1983 |
| | | | JP 59017933 A | 30-01-1984 |
| | | | GB 2166957 A ,B | 21-05-1986 |
| DE 19611993 | C | 17-04-1997 | DE 19611993 C1 | 17-04-1997 |
| | | | CA 2250227 A1 | 02-10-1997 |
| | | | WO 9735626 A1 | 02-10-1997 |
| | | | EP 0889741 A1 | 13-01-1999 |
| | | | JP 2000507135 T | 13-06-2000 |
| GB 2130883 | A | 13-06-1984 | JP 1846006 C | 25-05-1994 |
| | | | JP 5059082 B | 30-08-1993 |
| | | | JP 59104303 A | 16-06-1984 |
| | | | AR 241065 A1 | 31-10-1991 |
| | | | AU 555368 B2 | 18-09-1986 |
| | | | AU 2162383 A | 07-06-1984 |
| | | | FR 2536958 A1 | 08-06-1984 |
| | | | GR 78770 A1 | 02-10-1984 |
| | | | HK 97185 A | 13-12-1985 |
| | | | IT 1167043 B | 06-05-1987 |
| | | | MY 35086 A | 31-12-1986 |
| | | | PH 18837 A | 10-10-1985 |
| US 6078728 | A | 20-06-2000 | AU 741564 B2 | 06-12-2001 |
| | | | AU 4432999 A | 10-01-2000 |
| | | | BR 9911512 A | 02-10-2001 |
| | | | CN 1310581 T | 29-08-2001 |
| | | | CZ 20004860 A3 | 15-08-2001 |
| | | | EP 1073329 A1 | 07-02-2001 |

INTERNATIONAL SEARCH REPORT

Information on patent family members

In. ational Application No

PCT/US 01/26762

| Patent document cited in search report | Publication date | Patent family member(s) | Publication date |
|---|---------------------|---|--|
| US 6078728 | A | NO 20006594 A PL 345020 A1 TW 397668 B WO 9966791 A1 | 20-02-2001 19-11-2001 11-07-2000 29-12-1999 |
| US 6031967 | A 29-02-2000 | AU 2990100 A BR 0000556 A CZ 20012995 A3 EP 1029451 A1 NO 20013992 A WO 0048460 A2 US 6154607 A | 04-09-2000 03-10-2000 16-01-2002 23-08-2000 16-10-2001 24-08-2000 28-11-2000 |
| GB 2166653 | A 14-05-1986 | GR 80944 A1 DE 3535523 A1 FR 2572937 A1 IT 1191624 B | 06-12-1984 15-05-1986 16-05-1986 23-03-1988 |